

E-Infrastructure Leadership Council

24 March 2015 1430-1630

BIS Conference Centre, 1 Victoria Street, London, SW1H 0ET.

Attendees**Joint Chairs:**

Prof Tony Hey University of Washington

Industry Members:

Paul Best	Industry 42
Ian Dix	AstraZeneca
David Docherty	Digital Television Group
Andy Grant	Bull
Darren Green	GlaxoSmithKline
Andrew Jones	Numerical Algorithms Group
Robert Maskell	Intel

Academic Members:

Prof Peter Coveney	University College London
Prof Robert Glen	University of Cambridge
Prof Richard Kenway	University of Edinburgh
Prof Douglas Kell	University of Manchester
Dr Oz Parchment	University of Southampton
Prof Mike Payne	University of Cambridge

Public Sector Members:

Dr Cliff Brereton	Hartree Centre (STFC)
Dr Bob Day	JANET
Dr Joanna Dally	Go Science
Paul Driver	BIS (Information Economy Council)
Dr Lesley Thompson	EPSRC

Secretariat/Observers:

Dr Claire Devereux	BIS (Seconded from STFC)
Dr Jatinder Singh	BIS (Seconded from University of Cambridge)

Guests

Nick Appleyard	InnovateUK (in place of Kevin Baughan)
Barry Blackwell	Business Information Modelling (BIS)
Sue Daley	techUK
Dr Peter Fletcher	STFC

Apologies

Kevin Baughan	InnovateUK
Dr Stuart Bell	Met Office
Rt Hon Greg Clark MP	Minister of State for Universities and Science
Dr Anne-Marie Coriat	RCUK
Dr Martin Ridge	BIS
Andy Searle	Jaguar Land Rover
Rt Hon Ed Vaizey MP	Minister for Culture and the Digital Economy

1. Welcome

Tony Hey took the Chair, welcoming members and guests to the tenth meeting of the E-infrastructure Leadership Council (ELC).

The Chair began by congratulating Dr Bob Day, on behalf of the entire Council, for being awarded an MBE in the Queen's New Year's Honours List for his services to Information Technology.

The Chair, in giving apologies for the co-chair Minister Greg Clark, noted that his absence was due to pressing last minute commitments given the last week of Parliament. The Chair emphasised that the Minister recognised the importance of the ELC agenda and the significant achievements of the Council thus far.

2. Successes of this Government in big data and e-infrastructure

The Chair asked Claire Devereux to read to the Council a note covering the Minister's welcome address. In summary:

The Minister recognises that data and big science drive innovation, and are crucial for the UK's competitive advantage. The Science and Innovation Strategy that was launched in collaboration with the Treasury highlights the importance of science and innovation to the Government's long-term economic plan. The aim is for the UK to be the best place for science and business, the plan for this includes supporting and investing in science, including both people and infrastructure, and catalysing innovation.

The Minister in his recent visit was impressed by the work of the Hartree Centre, for example in medical research innovations using a big data approach, and was pleased by the Chancellor's Autumn Statement announcement of £115 million investment to expand the Hartree investment with a Cognitive Computing and Data Centric Research initiative. This, combined with the other significant investments Government has made into our data infrastructure---£160 million in 2011, £189 million in 2012, £42 million for the establishment of the Alan Turing Institute as well as the latest investment for the expansion of Hartree this

year---is creating the right climate for the UK to be a world leader in the space.

2. Successes of the ELC On Ramp Sector Initiatives

As a lead in to the discussion of the progress regarding the on ramp initiatives, The Chair reiterated that the work of the Council and its Members was instrumental to the successes just described.

For the construction sector, Barry Blackwell introduced Digitally Built Britain's Building Information Modelling (BIM3) initiative. It was explained that BIM brings to construction the benefits and technology used in advanced manufacturing – to design and test before production. Currently there is a BIM level 2 programme, concerning the digital representation of an construction asset. This programme was launched in 2011, with BIM2 used by over £10 billion of projects so far, including HS2. In addition to substantial cost savings, this has placed the UK as a world leader, winning numerous awards, standards developments, and so forth.

BIM3 moves beyond asset modelling (BIM2), to using data flows in a smart city context: linking with geospatial sensor technology, to help manage a city. Towards the UK leading in this capability, a BIM3 strategy called "Digitally Built Britain" has been published and announced by the Secretary of State Vince Cable. To implement the strategy a case for an £80 million investment over the next 5 years will be considered by BIS as part of the forthcoming Spending Review. It was noted that the case involves strong collaborations with InnovateUK and STFC.

In response to a question on how BIM3 aligns to the smart cities agenda, BIM3 was described as being 'bottom up', whereas smart cities is 'top-down' – the agendas align and intersect in the middle. It was clarified that as much data will be open as practicable, and made available to SMEs, e.g. through InnovateUK initiatives.

Darren Green reported on the progress concerning the National Digital Design Centre for medicines, which aims to increase the level of

pharmaceutical manufacturing in the UK. This includes developing and applying advanced manufacturing methodologies (and using software, data and analytics), for example to increase the reliability of pharmaceutical production (currently 2σ), and increase the knowledge supply chain such that products/processes are repeatable. It is anticipated this could re-shore 1000 jobs and bring a ~£1 billion industry back to the UK. The Centre is directly supported by a number of major companies within the sector.

The full bid previously seen by the ELC was refined and funded as part of the *Advanced Manufacturing Supply Chain Initiative (AMSCI)* – the grant totalled £22.5M over 4 years, with £14.8 million invested by AMSCI and the remainder by the consortium. The Centre is due to open in June. Darren gave particular thanks to Karen Booth (Office for Life Sciences) who was instrumental in making the initiative happen. The Chair reiterated this thanks on behalf of Council members.

3. Task force reports

The Chair reminded Members that two task forces were commissioned at the last meeting, one concerning the role of software in the ELC landscape, and the other on privacy in cloud computing.

Mike Payne, Chair of the software task force thanked those Members who contributed, either directly or by providing the appropriate contacts. It was noted that due to the enthusiasm of the task force members, rather than a single report, a number of short, self-contained reports will be published, each dealing with a particular software concern. Though the initial focus is on the scientific aspects of software, it was found that broader and more general software issues are also relevant.

The task force felt that the main area of consideration was software quality: how software quality is measured, assessed and recognised, and how to encourage higher-quality development processes, improving the training (and rewards) for would be software developers, and so forth.

During discussion, it was commented that some sort of indicator (traffic light) system would be useful. This should not attempt to indicate whether software is 'good or bad', but rather indicate its fit for a particular purpose, level of sustainability and support, and so forth. It was mentioned Argonne Lab in the US would be interested in collaborating on this, and the ELC approved Mike to explore this further.

It was also clarified there are two, intrinsically interlinked aspects that require attention: the software itself (measurement, assessment, sustainability), and the persons developing it (training, certification, encouragement, reward).

It was questioned as to whether the task force's broad investigations would be able to deliver in a timely manner. The output will be a number of stand-alone reports covering a range of issues, allowing those interested in a particular aspect to find out more as and when the reports are published, without having to wait until every element of investigation is complete. The reports still have a clear, underlying theme concerning issues of quality and sustainability as discussed.

Action 10:01: Software task force (Mike Payne) to coordinate final versions of the report and Secretariat to make them available online on the ELC web pages.

Oz Parchment, Chair of the data privacy in cloud taskforce, was invited to give a progress report. Oz noted that there is a lot of work on cyber security for cloud, and that the task force aimed to focus squarely on ELC concerns – most of which concern big data. It was explained that challenges arise from the tension between the added value of blending datasets and the associated data privacy/security risks and management complexities.

Transparency was considered a key concern, and it was recommended that perhaps some form of accreditation regime of cloud services would assist. It was also felt that technical horizon scanning exercises would be useful, to ensure that any actions account for emerging technical directions, and that because public understanding

appears an issue, perhaps the perceptions of individuals and organisations could be explored.

During discussion, it was noted that there were a number of related Government initiatives, including by GOScience, the Government Digital Service, Cabinet Office, and InnovateUK, in terms of big data opportunities, privacy/ethics concerns, technical horizon scanning and looking at issues of public perception. It was suggested that the task force report be reworked to point to the detailed initiatives taking place elsewhere.

Action 10:02: Data privacy in cloud task force (Oz Parchment) to coordinate adapt the report to reference other Government initiatives.

4. techUK introduction

The Chair introduced Sue Daley, head of Big Data Cloud and Mobile at techUK to give an overview of relevant activities as a precursor for potential collaboration with the ELC.

techUK is a trade organisation for the tech sector, representing more than 850 companies (and 500k jobs) in the UK. Its role is to be the “voice of the tech sector”, helping to develop networks, markets, and help members understand and reduce business costs and risks.

It was explained that there are a number of techUK cross-market programmes, focusing on particular areas of technology, across a number of verticals, including delivery for consumers, business and the public sector. Many of these directly align to the ELC agenda, as issues concerning software, data, analytics, skills, underpin many of these. Therefore, there appears some room for collaboration

In terms of initiating interaction, it was suggested that ELC members could be involved in techUK’s on-going work on issues of big data (‘Value of Big Data workshops’), and future events looking at the UK Cloud.

Action 10:03: Secretariat to circulate techUK slides and contact details to Members.

5. Aerospace update

Paul Best reported on follow-up dialogue with Rolls Royce (RR), post their attendance at ELC09, where RR described the need for national infrastructure to support product development. As RR is a tier 1 aerospace company, it is natural that they become a leader in data analytics. RR was keen to learn more about the aerospace industry’s experience in leveraging national infrastructure.

As a result, the suggestion was for further engagement with the Aerospace Technology Institute (ATI), a Government-industrial collaboration charged with UK’s Aerospace technology strategy. The ATI holds substantial funds and is currently developing their strategic plan. Aspects of e-infrastructure are clearly relevant to the strategic plan, but have not yet been considered in depth.

Council Members fully supported Paul’s request to further engage with the ATI in the development of their e-infrastructure strategy.

In discussion, it was suggested that greater clarity was required regarding the policies concerning the academic and industrial usage of national e-infrastructure. Peter Coveney and Lesley Thompson will discuss further offline.

Action 10.04: Paul Best to initiate e-infrastructure engagement with the Aerospace Technology Institute.

5. Horizon 2020 programme

Peter Fletcher was invited to describe current and upcoming opportunities for UK involvement in the European Commission’s Horizon 2020 programme for Research Infrastructures and E-infrastructure.

Peter explained that the 2014/15 work programmes had closed, but that the programmes for 2016/17 will be agreed by summer this year. There were two key themes to the proposed 2016/17 programmes: (1) the integration and consolidation of e-infrastructure

platforms, supporting EU policies and research and education communities; and (2) prototyping innovative e-infrastructure platforms.

There are two key EU groups that help advise on EU e-infrastructure policy: *ESFRI* (European Strategy Forum on Research Infrastructures) that considers infrastructure at the European/World scale (rather than that required at a national-level), and the *eIRG* (e-Infrastructure Reflection Group) that is the strategic body representing member states for the e-infrastructure programme. Locally, there's an informal UK reference group that provides feedback to the EU organisations. It was clarified that the local group comprises members from UK bodies concerned with the strategy, rather than applicants for such programmes.

Action 10.05: Secretariat to forward to Members Horizon 2020 presentation.

7. RCUK update and Alan Turing Institute

Lesley Thompson provided an update on the data-related initiatives of RCUK. It was emphasised that the role of big data in research and discovery is a strong continuing theme. RCUK have a "Data for Discovery" workshop, organized by Fiona Armstrong (ESRC) tomorrow to build a cross-council Big Data theme for the spending review. The work of the RCUK e-Infrastructure group is on-going, having produced a roadmap, technical papers and an annual survey. Looking forward, the group will consider challenges concerning the ecosystem and integration, and to produce a generally applicable e-infrastructure business case.

The Alan Turing institute, representing a £40M investment from Government and £5M from the Universities, is progressing. The details of the joint venture agreements are currently being finalised, and the work-streams under development.

It was mentioned that in the *in silico* environments domain, a highly active community and network has evolved, working towards collaboratively building an overarching computational framework. This was primarily

driven by post-docs, and was an example where the more effort put into papers showed a greater use in the software, and more developers meant more publications using the code. Also it led to a number of interesting career paths for those involved. It was felt that this is an interesting case study, and it would be useful to explore how alternative career paths could apply more generally.

7. Minutes, actions and other business

The minutes and actions from ELC09 were accepted by the Council.

It was suggested that a report be commissioned, in a similar vein to the *ELC One Year On* report, giving an update on progress and status. This was previously an action (ELC-07.03) postponed given issues of resources and the focus on the onramp initiatives. It was suggested that this be reconsidered once the new Ministerial Council chair has been assigned.

Action 10.07: Secretariat to publish a public version of the minutes for ELC meeting Oct 2014 on the gov.uk website as soon as possible.

8. Next meeting

08 July 2015 1430 – 1630 with lunch from 1330.
1 Victoria Street, London. To be confirmed post-election.